I CLAIM:

1. (Currently Amended) An imaging system for imaging objects, said system comprising:

(a) an illumination source producing a light beam directed along an optical path toward said object;

(b) a scan lens for focusing said light beam to a diffraction-limited configuration in a prescribed object plane, said scan lens having an external entrance pupil;

(c) a scanner for scanning said light beam to move said diffraction-limited configuration in a pre-determined scan pattern on said object plane, said entrance pupil being located at said scanner;

(d) said scan lens being movable relative to said object to achieve coarse focusing;

(e) a focusing lens being movable relative to said scan lens to achieve fine focusing, said scanner being located between said focusing lens and said scan lens; and

(f) a detector located to receive light from said object plane and a display to produce a signal from said detector.

2. (Original) An imaging system as claimed in claim 1 wherein said scan lens is in a fixed position relative to said object during fine focusing.

3. (Currently Amended) An imaging system as claimed in claim 1 wherein said focusing lens is located between said [object] scanner and said light source.

4. (Currently Amended) An imaging system as claimed in claim 1 wherein there is a detection arm located between said scanner and said detector, said focusing lens [is] being located between said [light source] scanner and said [detector] detection arm.

5. (Original) An imaging system as claimed in claim 1 wherein said focusing lens is located between said detector and said scanner.

6. (Previously Presented) An imaging system as claimed in Claim 4 wherein said imaging system is a multi-photon or two-photon system.

7. (Original) An imaging system as claimed in claim 1 wherein said scan lens is a liquid immersion scan lens and there is an immersion liquid between said scan lens and said object when said system is operational.

8. (Original) An imaging system as claimed in claim 1 wherein said system is a confocal imaging system and there is a detection arm located between said scanner and said detector, said detection arm receiving light from said diffraction-limited configuration in said object plane, said detection arm having a pinhole and a focusing lens to obtain a focal point for confocal detection of said light returning from said object, said detector being located behind said pinhole, there being a beamsplitter located between said detection arm and said object, said beamsplitter directing light returning from said object into said detection arm.

9. (Previously Withdrawn) An imaging system as claimed in claim 1 wherein said system is a non-confocal imaging system and there is a detection arm located between said detector and said object, said detection arm receiving light from said diffraction-limited configuration in said object plane.

10. (Previously Withdrawn) An imaging system as claimed in claim 9 wherein said detection arm has a first condenser lens therein, said detector being located behind said first condenser lens.

11. (Previously Withdrawn) An imaging system as claimed in claim 10 wherein there is a beamsplitter located between said object and said detection arm, said beamsplitter directing light returning from said object into said detection arm.

12. (Previously Withdrawn) An imaging system as claimed in claim 11 wherein there is a scanning mirror to de-scan light returning from said object, said scanning mirror being located between said beamsplitter and said object.

13. (Original) An imaging system as claimed in claim 7 wherein there is a side wall surrounding said scan lens, said side wall extending between said scan lens and said object, said side wall having a substantial sealing relationship with said scan lens and said object to retain said immersion liquid of said liquid-immersion scan lens between said scan lens and said object.

14. (Original) An imaging system as claimed in claim 1 wherein said system is constructed to allow fine focusing during operation of said system to image said object.

15. (Original) An imaging system as claimed in any one of claims 1, 2 or 3 wherein said scan lens is a telecentric f*theta liquid-immersion scan lens.

16. (Original) An imaging system as claimed in any one of claims 1, 2 or 3 wherein said scan lens is a telecentric f*theta scan lens.

17. (Original) An imaging system as claimed in any one of claims 1, 2, 3 or 6 wherein said detector is a spectrally-resolved detector.

18. (Original) An imaging system as claimed in any one of claims 1, 2 or 3 wherein there are means for supporting said object to be imaged.

19. (Original) An imaging system as claimed in any one of claims 1, 2 or 3 wherein there is a support for said object to be imaged, said support being capable of moving said object relative to said system.

20. (Original) A imaging system as claimed in any one of claims 1, 2, 3 or 6 including a second condenser lens and a transmission detector placed on an opposite side of said object, said condenser lens and said transmission detector being coaxial with said scan lens, where light transmitted through said specimen is detected.

21. (Original) An imaging system as claimed in any one of claims 1, 2 or 3 wherein said illumination source is a laser.

22. (Original) An imaging system as claimed in any one of claims 1, 2 or 3 wherein a laser rejection filter is placed in front of said detector, said imaging system being a multi-photon or two photon imaging system whereby said illumination source is a short pulse laser to excite multi-photon or two-photon fluorescence respectively in said object.

23. (Original) An imaging system as claimed in any one of claims 1, 2 or 3 wherein said system is configured to be controlled by a computer.

24. (Original) An imaging system as claimed in any one of claims 1, 2 or 3 wherein said imaging system is a macroscope and said system can be operated to image an object in reflected light, transmitted light, fluorescence, photoluminescence or multi-photon